Amendment to the Claims:

1.   (Cancelled)

2.   (Currently Amended)   The system of ~~claim 1~~ claim 19, wherein the ~~first means for automatically detecting the guide-wire tip are comprising means for~~ calculating the motion vectors includes, with the one ore more processors:

spatially extending the ~~skeleton, means for~~ centerline in the most recently acquired noisy image with the centerline of a previously acquired noisy image;

matching the ~~current skeleton to a skeleton of reference, means for~~ centerline in the most recently acquired noisy image;

estimating the ~~matching~~ motion ~~and means for extrapolating the matching motion to a full region of interest (ROI)~~ vectors based on the matching of the centerlines.

3.   (Currently Amended)   The system of ~~claim 1~~ claim 2, ~~the processing means further comprising selecting means for selecting a Region Of Interest in the sequence of images comprising the guide-wire tip, and processing the data in said Region Of Interest~~ wherein combining the most recently acquired noisy image with the plurality of previously acquired registered noisy images includes, with the one or more processors:

applying the motion vectors to the full most recently acquired noisy image such that the guide-wire tip and the vessel walls of the most recently acquired noisy image are registered with the guide-wire tip and the vessel walls of the plurality of previously acquired registered noisy images and the background of the most recently acquired noisy image and the background in the plurality of previously acquired noisy images are misaligned such that in combining the registered most recently acquired noisy image with the plurality of previously acquired registered noisy images, the vessel walls are enhanced and the background blurred.

4.   (Currently Amended) The system of ~~claim 1~~ claim 19, further comprising~~:~~

a user operated control ~~means for~~ by which a user [[to]] activates the image acquisition device to acquire noisy images, ~~to control the duration or to stop the processing means applied to the sequence of images in connection to a selected instant of the sequence, comprising starting means and stopping means for the user to activate or stop, at said selected instant, the processing means applied to the sequence of images for improving the visibility of the selected Region Of Interest~~ starts the one or more processors to start registering and combining each most recently acquired image with the previously acquired registered noisy images, and stops the one or more processors to stop the series of images.

5.   (Cancelled)

6.   (Currently Amended) The system of ~~claim 1~~ claim 19, ~~the second means further comprising zooming means for zooming on~~ wherein the one or more processors are further programmed to:

zoom the displayed Region Of Interest.

7.   (Currently Amended) The system of ~~claim 1~~ claim 19, ~~the display means further comprising registering means for further registering a live sequence of processed images with respect to a sequence of corresponding images called peri-interventional, in order to form a new live sequence (R'(t)) on which the features of the peri-interventional images are superimposed~~ wherein combining the most recently acquired noisy image with the previously acquired image includes superimposing the registered most recently acquired image on at least one previously acquired registered noisy image.

8.   (Currently Amended) The system of ~~claim 1~~ claim 7, ~~the display means further comprising registering means for further registering a live sequence of processed images with respect to a sequence of corresponding images called peri-interventional images, in order to form a new sequence of peri-~~

~~interventional images (J'0-J'n) on which the features of the live images are~~ ~~superimposed~~ wherein the at least one previously acquired registered noisy image includes a plurality of the previously acquired registered noisy images which have been combined.

9. (Currently Amended) The system of ~~claim 1~~ claim 19, wherein ~~the peri-interventional images are first registered in a referential formed by~~ ~~two patient's characteristics and the live processed images are further registered with~~ ~~respect to said first registered peri-interventional images~~ a contrast agent is periodically injected into the vessel such that in the most recently acquired noisy image after injection of the contrast agent, the tip is obscured by the contrast agent and wherein the combining step includes with the one or more processors, combining the most recently acquired noisy image with at least one previously acquired noisy image in which the centerline of the tip is depicted.

10. (Currently Amended) The system of ~~claim 1~~ claim 19, wherein ~~the patient's characteristics are~~ calculating the motion vectors with the one ore more processors is further based on a breathing characteristic and a heart pulse characteristic.

11-13. (Cancelled)

14. (Currently Amended) A medical examination imaging apparatus ~~having means for acquiring a~~ comprising:
        a disgnostic imaging device that acquires the sequence of noisy medical images in real time; and
        ~~having~~ a viewing system according to ~~claim 1~~ claim 19 which processes and displays ~~for processing and for displaying~~ said ~~sequence~~ series of images.

15. (Currently Amended) A computer executable image processing method for displaying in a medical viewing system a sequence of medical

images that represents moving and/or positioning a guide-wire in a blood vessel, the method comprising:

acquiring ~~an original~~ a sequence of noisy images ~~called live sequence of the blood vessel and the guide-wire as the guide-wire moves in the blood vessel~~ ;

processing the [[live]] sequence of noisy images in real time, the processing comprising:

detecting automatically the guide-wire tip[[,]];

identifying ~~thereby yielding~~ a skeleton of the guide-wire tip comprising a series of pixels along [[the]] a centerline of the tip; [[and]]

determining a field of motion vectors based on said skeleton;

~~starting an automatic device to deliver diluted contrast agent into the blood vessel over a period of a few minutes;~~

registering automatically the guide-wire tip with respect to a prior reference image of the sequence based on the field of motion vectors;

~~enhancing the images of the guide-wire and the vessel walls while blurring the background in the registered images comprising: enhancing the ridge corresponding to the guide-wire tip; and~~ integrating temporally by averaging pixel intensity over ~~several~~ a plurality of the noisy images of the sequence that are registered to the reference image, thereby enhancing ~~line-like structures~~ the blood vessel and blurring [[the]] background; and

displaying the processed [[live]] sequence.

16.   (Currently Amended) A computer readable storage medium comprising instructions for carrying out a computer executable image processing method for displaying in a medical viewing system a sequence of medical images that represents moving and/or positioning a guide-wire in a blood vessel, the method comprising:

acquiring an original live sequence of noisy images called a live sequence;

starting an automatic device to deliver diluted contrast agent into the blood vessel;

processing the live sequence of noisy images in real time, the processing comprising for each most recently acquired noisy image of the live sequence:

detecting automatically the guide-wire tip[[,]];

~~thereby yielding~~ generating a skeleton of the guide-wire tip comprising a series of pixels along [[the]] a centerline of the tip; [[and]]

generating field of motion vectors based on said skeleton;

~~starting an automatic device to deliver diluted contrast agent to the blood vessel over a period of a few minutes;~~

registering automatically the guide-wire tip with respect to a prior reference image from the live sequence based on the field of motion vectors;

enhancing ~~the images of~~ the guide-wire and ~~the~~ vessel walls while blurring [[the]] background ~~in the registered images comprising: enhancing the ridge corresponding to the guide-wire tip; and~~ by integrating temporally by averaging pixel intensity over ~~several images~~ the most recently acquired image registered to the reference image and a plurality of preceding noisy images of the live sequence registered to the reference image, thereby enhancing ~~line-like structures~~ the blood vessel adjacent the tip, ~~and~~ blurring the background, and enhancing a line corresponding to the tip centerline in the integrated most recently acquired and preceding noisy images; and

displaying the processed live sequence.

17.   (Currently Amended) A method for positioning a guide-wire in a blood vessel, which guide-wire has a guide-wire tip that is contrasted with respect to the guide-wire, the method comprising:

operating a medical viewing system to acquire an original sequence of noisy images called a live sequence;

processing the live sequence of images in real time, the processing comprising:

detecting the guide-wire tip, yielding a skeleton of the guide-wire tip comprising a series of pixels along [[the]] a centerline of the guide-wire tip, and field of motion vectors based on the skeleton;

delivering diluted contrast agent into the blood vessel over a period of a few minutes;

registering the guide-wire tip with respect to a reference based on the field of motion vectors; [[and]]

integrating temporally by averaging pixel intensity over several images to enhance the images of the guide-wire and the vessel walls while blurring [[the]] background in [[the]] registered images; and

displaying a live sequence of processed images.

18.   (New)   The computer readable storage medium of claim 15, wherein the integrating step including integrating the centerline of the tip to generate a ridge or line depicting the guide wire.

19.   (New)   A medical viewing system for displaying a sequence of medical images that depict moving and/or positioning an imageable tip of a guide-wire in a blood vessel, the system including:

one or more processors programmed to:

acquire a sequence of noisy images of a region of interest of a patient depicting the imageable tip of the guide-wire, the blood vessel in which the guide-wire is disposed, and background outside the blood vessel,

detect the guide-wire tip in each acquired noisy image,

define a series of pixels along a center line of the tip,

calculate a field of motion vectors defining motion of the tip in each most recently acquired noisy image relative to a previously acquired reference noisy image,

register the guide-wire tip with respect to the previously acquired reference noisy image based on the field of motion vectors,

combine the most recently acquired noisy image of the sequence with a plurality of previously acquired noisy images of the sequence which have been registered to the reference noisy image such that the tip of the guide-wire and walls of the blood vessel adjacent the guide-wire tip are enhanced while the background is blurred, and the center lines of the tip and the most recently and previously acquired noisy images define a line; and

a display which displays each most recently acquired noisy image combined with the plurality of previously acquired noisy images in real time to provide the sequence of medical images depicting movement of the guide-wire through the blood vessel with the vessel walls enhanced.